UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,172	09/16/2003	Bruce C. Beihoff	ALBR0129?YOD 03AB109	2821

7590 05/22/2006

Alexander Gerasimow
Allen Bradley Company
Patent Dept. 704P Floor 8 T29
1201 South Second Street
Milwaukee, WI 53204

EXAMINER	
NGUYEN, HUNG THANH	
ART UNIT	**PAPER NUMBER**
2841	

DATE MAILED: 05/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/663,172	BEIHOFF ET AL.	
	Examiner	Art Unit	
	HUNG T. NGUYEN	2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *48-77* is/are pending in the application.

4a) Of the above claim(s) *1-47* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *48-77* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 48, 58 are rejected under 35 U.S.C. 102(b) as being anticipated by Cook, II (US 5,687,066).

Regarding claim 48, 58: Cook, II discloses in figures 2, 3, a modular power converter comprising: a converter (10) including a support (26, 60, 62) including a passage (48) for circulation of a cooling medium and a power electronic switching circuit (20) mounted on the support (26, 60, 62) and configured to convert input power (14) to output power (16) having desired electrical characteristics; a housing (18) at least partially surrounding the converter (10); and at least one plug-in connector (14, 16) coupled to the switching circuit (20) and to the housing (18) for establishing electrical continuity between the converter and external circuitry.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 49-57, 59-77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook, II (US 5,687,006) in view of Nigorikawa (US 4,628,412) and Sanger et al. (US 6,016,007) and Verma (US 5,872,332).

Regarding claim 49: Cook, II discloses the housing (explain above) shields the switching circuit from EMI (circuit should be shielded by the housing since housing is made of metal or aluminum, see column 4, lines 47-67). Cook, II does not disclose the at least one connector extends EMI shielding from the housing to a region at least partially surrounding conductors of the at least one connector.

Verma discloses in figure 1, at least one connector (34) extends EMI shielding from the housing to a region at least partially surrounding conductors of the at least one connector.

Cook, II and Verma are analogous art because they are from the same field of endeavor to make shielding devices.

Therefore, it would have been obvious for one ordinary skill in the art at the time of the invention to make shielding device of Cook, II to have connector extends EMI shielding from the housing as taught by Verma for the benefit of protect device from unwanted noise.

Regarding claim 50, 60, 70: Cook, II discloses all elements of the converter as described above with respect to claim 1 except, Cook, II does not disclose the converter wherein the at least one connector includes a single connector having electrical connections for the input power and the output power.

Nigorikawa discloses the converter wherein the at least one connector includes a single connector having electrical connections for the input power and the output power.

Cook, II and Nigorikawa are analogous art because they are from the same field of endeavor to make shielding housing.

At the time of the invention, it would have been obvious for one ordinary skill in the art to make connector of Cook, II to have electrical connections for the input and output power as taught by Nigorikawa.

Therefore, it would have been obvious for one ordinary skill in the art to combine Cook, II with Nigorikawa for the benefit of reducing space.

Regarding claim 51, 56, 57, 61, 66, 67, 71, 76, 77: Cook, II discloses all elements of the converter as described above with respect to claim 1 except, Cook II does not disclose the converter wherein the single connector includes connections for incoming and outgoing cooling fluid.

Sanger et al. discloses the converter wherein the single connector includes connections for incoming and outgoing cooling fluid.

Cook, II and Sanger et al. are analogous art because they are from the same field of endeavor to make shielding housing.

At the time of the invention, it would have been obvious for one ordinary skill in the art to make connector of Cook, II for incoming and outgoing fluid as taught by Sanger et al.

Therefore, it would have been obvious for one ordinary skill in the art to combine cook, II with Sanger et al. for the benefit of reducing heat and better electronic performance.

Regarding claim 52, 62, 72: Cook, II discloses all elements of the converter as described above with respect to claim 48, Cook, II does not disclose at least one connector includes a first connector for routing the input power into the housing and a second connector for routing output power from the housing.

Verma discloses in figure 1, at least one connector (34) includes a first connector for routing the input power into the housing and a second connector for routing output power from the housing (it appears elements 34 consisting of plurality pins. Each pin is configured to communicate with various connections).

Cook, II and Verma are analogous art because they are from the same field of endeavor to make shielding devices.

Therefore, it would have been obvious for one ordinary skill in the art at the time of the invention to make shielding device of Cook, II to have connector one connector includes first/second connectors as taught by Verma for the benefit of communicating with various connections.

Regarding claim 53, 63, 73, 75: Cook, II discloses all elements of the converter as described above with respect to claim 1 except, Cook, II does not disclose the converter wherein the first and second connectors are disposed on a same side of the housing.

Nigorikawa discloses the converter wherein the first and second connectors are disposed on a same side of the housing.

Cook, II and Nigorikawa are analogous art because they are from the same field of endeavor to make shielding housing.

At the time of the invention, it would have been obvious for one ordinary skill in the art to make connector of Cook, II on the same side of the housing as taught by Nigorikawa. Therefore, it would have been obvious for one ordinary skill in the art to combine Cook, II with Nigorikawa for the benefit of reducing space.

Regarding claim 54, 55, 64, 65, 74: Cook, II discloses all elements of the converter as described above with respect to claim 1 except, Cook, II does not disclose the converter wherein the first and second connectors are disposed on opposite sides of the housing. Nigorikawa discloses the first and second connectors are disposed on opposite sides of the housing.

Cook, II and Nigorikawa are analogous art because they are from the same field of endeavor to make shielding housing.

At the time of the invention, it would have been obvious for one ordinary skill in the art to make connectors of Cook, II to disposed on opposite sides of the housing as taught by Nigorikawa.

Therefore, it would have been obvious for one ordinary skill in the art to combine Cook, II with Nigorikawa for the benefit of reducing signal interference.

Regarding claim 59, 69: Cook, II discloses all elements of the converter as described above with respect to claim 1 except, Cook, II does not disclose the converter wherein the housing and the at least one connector are configured to provide contiguous shielding having intrinsically low impedance paths for EMI originating from the switching circuit and from sources external to the converter during operation.

However, it is old and well known for one ordinary skill in the art to make the housing and connector having intrinsically low impedance paths for the benefit of implied higher current.

Therefore, it would have been obvious for one ordinary skill in the art to make housing and connector to have low impedance for the benefit of implying higher current.

Regarding claim 68: Cook, II discloses in figures 2, 3, a power converter comprising: a converter (10) including a support (26, 60, 62) including a passage (48) for circulation of a cooling medium and a power electronic switching circuit (20) mounted on the support (26, 60, 62) and configured to convert input power (14) to output power (16) having desired electrical characteristics; a housing (18) at least partially surrounding the converter (10) and configured to provide integral EMI shielding and at least partially defining an electrical reference plane (it appears element 18 provide EMI shielding) for the converter (10); at least one plug-in connector (14, 16) coupled to the switching circuit (20) and to the housing (18). Cook, II does not disclose a connector plug adapted to interface with the at least one plug-in connector for establishing electrical continuity between the converter and external circuitry; wherein the at least one plug-in connector and the connector plug mate to extend EMI shielding from the housing to ((a)) the connector plug.

Verma discloses in figure 1, a connector plug (34) adapted to interface with the at least one plug-in connector for establishing electrical continuity between the converter and external circuitry; wherein the at least one plug-in connector (34) and the connector plug mate to extend EMI shielding from the housing to (a) the connector plug (it appears in

figure 1 that connector 34 is capable to mate and it is also extend EMI shielding from the housing).

Cook, II and Verma are analogous art because they are from the same field of endeavor to make shielding devices.

Therefore, it would have been obvious for one ordinary skill in the art at the time of the invention to make device of Cook, II to have extend EMI shielding from the housing as taught by Verma for the benefit preventing unwanted signals.

Relevant Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Huang (US 5,430,618) teaches EMI shielding housing, Wolf et al. (US 5,734,561) teaches the shielding rack from electromagnetic interface, Verma (US 5,872,332) teaches the EMI shielding cage for electronic device, Jitary (US 5,973,923) teaches the power converter.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HUNG T. NGUYEN whose telephone number is 571-272-5983. The examiner can normally be reached on 8:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, KAMMIE CUNEO can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HUNG THANH NGUYEN 5/4/06

HN

RANDY W. GIBSON
PRIMARY EXAMINER